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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,683	03/17/2004	Yoshiyuki Tsuji	250502US0X	1876
22850	7590	09/26/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER O HERN, BRENT T	
			ART UNIT 1772	PAPER NUMBER
			NOTIFICATION DATE 09/26/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

**Office Action Summary**

Application No.

10/801,683

Applicant(s)

TSUJI ET AL.

Examiner

Brent T. O'Hern

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1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-13,15,16,18,19 and 26-28 is/are pending in the application.
- 4a) Of the above claim(s) 8-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,12,13,15,16,18,19 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 15 August 2007 has been entered.

### ***Claims***

2. Claims 1-2, 4-13, 15-16, 18-19, 26-28 are pending with claims 8-11 withdrawn.

## **WITHDRAWN REJECTIONS**

3. The 35 U.S.C. 112, second paragraph rejections of claims 3, 6-7 and 15-20 of record in the Office Action mailed 25 April 2007, page 2, paragraph 3 have been withdrawn due to Applicant's amendments in the Paper filed 15 August 2007.

4. The 35 U.S.C. 102 rejections of claims 1-7 and 12-20 as being anticipated by Segawa et al. (US 2002/0078886) of record in the Office Action mailed 25 April 2007, page 2, paragraph 4 have been withdrawn due to Applicant's amendments in the Paper filed 15 August 2007.

5. The 35 U.S.C. 112, second paragraph rejections of claims 24-26 of record in the Office Action mailed 25 April 2007, page 2, paragraph 5 have been withdrawn due to Applicant's amendments in the Paper filed 15 August 2007.

6. The 35 U.S.C. 103 rejections of claims 21-26 as being unpatentable over Segawa et al. (US 2002/0078886) in view of Tsuji et al. (US 6,524,668) of record in the

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Office Action mailed 25 April 2007, page 2, paragraph 6 have been withdrawn due to Applicant's amendments in the Paper filed 15 August 2007.

## NEW OBJECTIONS

### *Claim Objections*

7. Claim 7 is objected to because of the following informalities: The phrase "ad the number of projections" appears to be a typographical error. Appropriate correction is required.

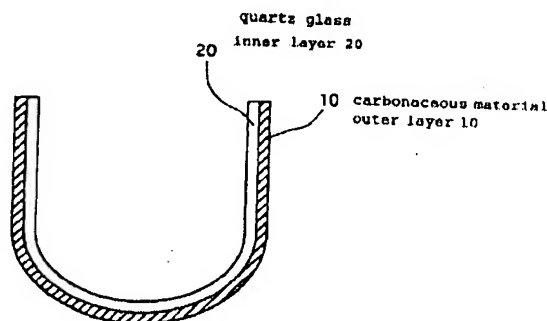
## NEW REJECTIONS

### *Claim Rejections - 35 USC § 103*

8. Claims 1-2, 4-7, 12-13, 15-16, 18-19 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji et al. (US 6,524,668) in view of Sarno (US 4,403,955) and Hill (US 2,947,114).

Tsuji ('668) teaches a silica glass crucible (See col. 3, ll. 28-34 and FIG-1, #20.) comprising:

FIG. 1

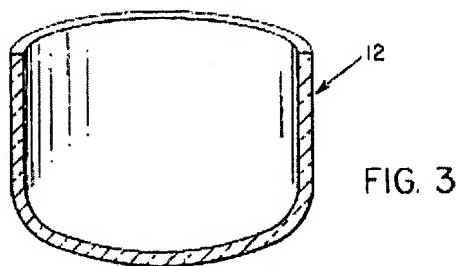


a silica glass crucible having a wall part, an open diameter an inner surface, and an outer surface (See col. 3, ll. 28-34 and FIG-1, #20.); and

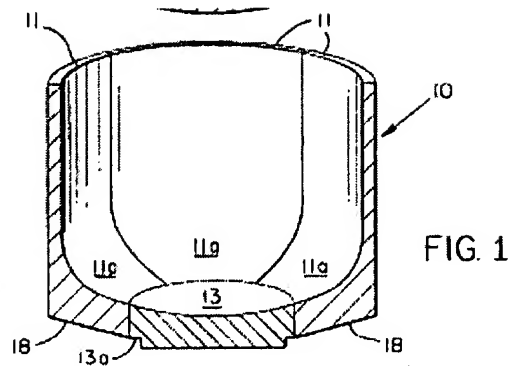
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a graphite susceptor adhered to the outer surface of the silica glass crucible (See *col. 3, ll. 25-47 and FIG-1, #10.*), however, fails to expressly disclose wherein at least an outer surface of the wall part of the crucible is covered with fine grooves having a length of from 10  $\mu\text{m}$  to 200  $\mu\text{m}$ /(10  $\mu\text{m}$  to 100  $\mu\text{m}$ ), a width of from 10  $\mu\text{m}$  to 30  $\mu\text{m}$  and a depth of from more than 3  $\mu\text{m}$  to less than 30  $\mu\text{m}$ /(3  $\mu\text{m}$  to 10  $\mu\text{m}$ ); wherein a sliding frictional coefficient of the outer surface of the crucible to the graphite susceptor at 1500°C is more than 0.6, wherein the fine grooves exist on more than 10% of the outer surface of the crucible, and wherein the outer surface of the crucible has projections having a height of 0.1 mm or more and the number of projections is an average of less than 5 /mm<sup>2</sup> per unit area on the outer surface of the crucible and wherein the grooves are only present on the outer surface of the crucible.

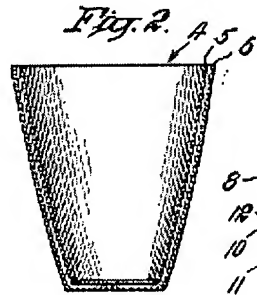
However, Sarno (US 4,403,955) teaches wherein it is well known in the art that the outer surfaces of silica glass crucibles have a roughened outer surface as a result the unfused sand present on the outer surface of the crucible (See *col. 3, ll. 26-35 and FIGs 1 and 3 wherein the crucible #12 having an rough outer surface is placed into receptacle #10.*).



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Furthermore, Hill (US 2,947,114) teaches wherein it is well known in the art that when a crucible is placed inside an outer base member that either the outside surface of the crucible or the inside surface of the outer member is roughened by sand-blasting in order to provide a nested two-member structure (See col. 3, ll. 10-16 and FIG-2, crucible #4 with inner liner #5 and outer base #6.).



Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention that Tsuji's ('668) silica glass crucible would either have the above surface properties as taught by Sarno ('955) or it would have been obvious to one having ordinary skill in the art the time Applicant's invention was made, through routine optimization, to roughen the outer surface of Tsuji ('668) as taught by Hill ('114) in order to provide the above surface properties for adhering the members together.

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The phrase “**used for pulling silicon single crystal**” in claims 1, 6 and 7, lines 1-2 of all claims are deemed to be a statement with regard to the **intended use** and is not further limiting in so far as the structure is concerned (*see MPEP 2111.02*).

The phrase “wherein the outer surface of the crucible is covered with the fine grooves by carrying out a sand-blast treatment and a hydrofluoric acid etching on the outer surface” in claim 4, lines 2-4 are **process limitations** in a product claim and hence not given any patentable weight since patentability of a product does not depend on its method of production (*see MPEP § 2173.05(p)*).

#### **ANSWERS TO APPLICANT'S ARGUMENTS**

9. In response to Applicant's arguments (*pp. 8-12 of Applicant's Paper filed 15 August 2007*) that Segawa ('886) does not teach the amended claims, it is noted that Segawa ('886) is no longer cited as teaching any of the pending claims, thus Applicant's arguments are moot.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent T. O'Hern whose telephone number is (571) 272-0496. The examiner can normally be reached on M-Th, 9:00-6:00.

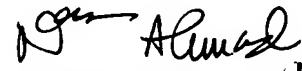
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Brent T O'Hern  
Examiner  
Art Unit 1772  
September 11, 2007

  
NASSER AHMAD 9/16/07  
PRIMARY EXAMINER